<u>IN THE CLAIMS:</u>

The following is a complete listing of the claims, and replaces all earlier versions and listings.

Claim 1 (currently amended): Method of predicting a quantity of a printing product necessary for printing a document, comprising the steps of:

storing a document in its entirety as digital data;

dividing each page of the document into <u>wider</u> bands of the digital data, <u>wherein a wider band is a band increased by an overlap margin belonging to an adjacent band;</u>

creating, from the digital data, a table (T) of limited capacity describing ~~at least part of~~ a monochromatic component of ~~one of the bands~~ <u>a wider band</u>, with the monochromatic component corresponding to the printing product and each cell of the table representing at least a pixel;

counting (6) a number of switched-on pixels in the table, with a switched-on pixel corresponding to a pixel for which a portion of the printing product must be ejected; and

deriving from a number of switched-on pixels corresponding to each <u>wider</u> band a necessary quantity (10) of the printing product before enabling or demanding printing.

Claim 2 (currently amended): Method according to Claim 1,

wherein the table (T) of limited capacity is created with a capacity less than a capacity necessary for describing the monochromatic component,[[,]]

wherein groups of pixels of the monochromatic component are entered therein successively, and

wherein, on each occasion of counting, a number of switched-on pixels is counted (6) until all the monochromatic component has been entered in the table and the switched-on pixels have been counted.

Claims 3-5 (canceled)

Claim 6 (previously presented): Method according to Claim 1, further comprising a calculation step (10) of multiplying the number of switched-on pixels by a value representing an elementary quantity of the printing product.

Claim 7 (previously presented): Method according to Claim 6, wherein the method is for an inkjet printing system, and wherein the value represents a value of a droplet of the printing product that is ejected.

Claim 8 (previously presented): Method according to Claim 7, wherein the value is preselected according to predetermined parameters, including a type of printer (7) and/or a type of cartridge (8) and/or a type of printing product (9).

Claim 9 (previously presented): Method according to Claim 8, wherein a set of values is stored and one of the values is selected according to a combination of the predetermined parameters.

Claim 10 (previously presented): Method according to Claim 1, wherein the steps are performed in order to determine a number of switched-on pixels (6) corresponding to each page, and wherein a respective quantity of the printing product necessary for printing each page is derived therefrom.

Claim 11 (previously presented): Method according to Claim 10, wherein necessary quantities of the printing product for all pages of the document are added (120).

Claim 12 (previously presented): Method according to Claim 1, further comprising the step of producing an item of information usable by a user from the derived necessary quantity of the printing product.

Claim 13 (previously presented): Method according to Claim 1, wherein the method is implemented in a computer (20) connected to a printer (210).

Claim 14 (previously presented): Method according to Claim 1, wherein the method is implemented in a computer connected by a network (400) to another computer connected to a printer.

Claim 15 (currently amended): Device for predicting a quantity of a printing product necessary for printing a document, comprising:

storage means for storing a document in its entirety as digital data;

divider means for dividing each page of the document into <u>wider</u> bands of the digital data<u>, wherein a wider band is a band increased by an overlap margin belonging to an adjacent band</u>;

creation means for creating, from the digital data, a table of limited capacity describing ~~at least part of~~ a monochromatic component of ~~one of the bands~~ <u>a wider band</u>, with the monochromatic component corresponding to the printing product and each cell of the table representing at least a pixel;

counter means for counting (6) a number of switched-on pixels in the table, with a switched-on pixel corresponding to a pixel for which a portion of the printing product must be ejected; and

deriver means for deriving from a number of switched-on pixels corresponding to each <u>wider</u> band a necessary quantity (10) of the printing product before enabling or demanding printing.

Claim 16 (previously presented): Device according to Claim 15, wherein the table of limited capacity is created with a capacity less than a capacity necessary for describing the monochromatic component, wherein the device further comprises entry means for successively entering therein groups of pixels of the monochromatic component, and wherein the counter means, on each occasion of counting (6), counts a number of

switched-on pixels until all the monochromatic component has been entered in the table and the switched-on pixels have been counted.

Claims 17-19 (canceled)

Claim 20 (previously presented): Device according to Claim 15, further comprising calculation means (10) for multiplying the number of switched-on pixels by a value representing an elementary quantity of the printing product.

Claim 21 (previously presented): Device according to Claim 20, wherein the device is included in an inkjet printing system, and wherein the value represents a volume of a droplet of the printing product that is ejected.

Claim 22 (previously presented): Device according to Claim 21, further comprising selection means for preselecting the value as a function of predetermined parameters, including a type of printer (7) and/or a type of cartridge (8) and/or a type of printing product (9).

Claim 23 (previously presented): Device according to Claim 22, further comprising:

second storage means for storing a set of values; and

second selection means for selecting one of the values according to a

combination of the predetermined parameters.

Claim 24 (previously presented): Device according to Claim 15,

wherein the counter means determines a number of switched-on pixels (6) corresponding to each page; and

wherein the deriver means derives from the number of switched-on pixels corresponding to each page, a respective quantity of the printing product necessary for printing each page.

Claim 25 (previously presented): Device according to Claim 24, further comprising adder means (120) for adding necessary quantities of the printing product for all pages of the document.

Claim 26 (previously presented): Device according to Claim 15, further comprising production means for producing an item of information usable by a user from the derived necessary quantity of printing product.

Claim 27 (previously presented): Device according to Claim 15, wherein the device is utilized with a computer (20) and a printer (210).

Claim 28 (previously presented): Device according to Claim 15, wherein the device is utilized with a computer connected by a network (400) to another computer

connected to a printer.

Claim 29 (currently amended): Method of managing printing product resources available in a colour printer that includes several reservoirs of different printing products, comprising the steps of:

dividing (2) a document stored as digital data into groups of digital data representing pages;

predicting (10) a quantity of each printing product necessary for printing each page of the document, including:

dividing each page of the document into <u>wider</u> bands of the digital data, <u>wherein a wider band is a band increased by an overlap margin belonging to an adjacent band,</u>

creating, from the digital data, a table (T) of limited capacity describing ~~at least part of~~ a monochromatic component of ~~one of the bands~~ <u>a wider band,</u> with the monochromatic component corresponding to the printing product and each cell of the table representing at least a pixel,

counting (6) a number of switched-on pixels in the table, with a switched-on pixel corresponding to a pixel for which a portion of the printing product must be ejected, and

deriving from a number of switched-on pixels corresponding to each <u>wider</u> band a necessary quantity (10) of the printing product before enabling or demanding printing;

measuring (317, 324, 315), before printing, a quantity of a printing product available in a reservoir, for each reservoir;

determining a selection of pages (415) that would ensure exhaustion, at least approximately simultaneously, of at least one group of the reservoirs; and

sending a message and/or triggering implementation of a processing entailing the selection of pages.

Claim 30 (previously presented): Method according to Claim 29, further comprising the steps of:

predicting a quantity of each printing product necessary for printing pages in their natural order;

updating, after each series of predictions concerning a page, a quantity of each printing product that would be available in each reservoir;

checking (406) after each updating whether a group of at least at least some of the reservoirs are almost empty; and

sending a message (408) indicating a need to change or fill the group of the reservoirs.

Claim 31 (previously presented): Method according to Claim 30, wherein, after changing the group of the reservoirs, processing (417) is resumed on remaining pages of the document, taking into consideration a reduced number of pages.

Claim 32 (previously presented): Method according to Claim 30, wherein, during processing of pages in their natural order, predicted quantities of products consumed for each page are stored.

Claim 33 (previously presented): Method according to Claim 29, wherein, in order to carry out a selection, it is checked, page after page, whether there is a change from a state in which all reservoirs in a group are not empty to a state (411) in which at least one of the reservoirs in the group is completely empty, and the selection (415) is decided on when the change occurs.

Claim 34 (previously presented): Method according to Claim 33, wherein, when the selection is decided on, a quantity of each printing product necessary for printing remaining pages is predicted and stored.

Claim 35 (previously presented): Method according to Claim 33, wherein, when the selection is decided on, a quantity of each printing product necessary for printing remaining pages is predicted and stored, and wherein the selection includes determining whether a sub-group of pages (620) exists whose printing would result in a group of at least some of the reservoirs being almost empty when printing of the sub-group ends.

Claim 36 (previously presented): Method according to Claim 35, wherein the sub-group is determined to exist if all structurally related reservoirs (61) forming a

cartridge would be empty when printing of the sub-group ends.

Claim 37 (previously presented): Method according to Claim 35, wherein the sub-group is determined to exist if several structurally related reservoirs forming a cartridge would be empty when printing of the sub-group ends.

Claim 38 (currently amended): Method according to Claim 36,[[,]] wherein, if the sub-group is determined to exist, printing the sub-group (627), and wherein at least one message (628) is sent indicating a need to change or fill the group of the reservoirs.

Claim 39 (previously presented): Method according to Claim 29, further comprising the steps of:

    predicting a quantity of a printing product necessary for printing a page;

    describing the page by pixels (4); and

    counting (6) a number of switched-on pixels corresponding to the printing product.

Claim 40 (previously presented): Method according to Claim 39, wherein the step of predicting the quantity of a printing product necessary for printing a page includes:

    using digital data on the page under consideration;

    creating a table (T_a, T_b, T_c, T_d) describing at least part of a monochromatic

component, with the monochromatic component corresponding to the printing product and each cell of the table representing a pixel;

counting a number of switched-on pixels in the table and deriving from the number of switched-on pixels in the table a necessary quantity of the printing product.

Claim 41 (previously presented): Method according to Claim 40, wherein the table (T) of limited capacity is created with a limited capacity less than a capacity necessary for describing the monochromatic component,

there are entered successively in the table (T) of limited capacity groups of pixels of the monochromatic component, and,

on each occasion of counting, a number of switched-on pixels is counted until all the monochromatic component has been entered in the table (T) and the switched-on pixels have been counted.

Claim 42 (currently amended): Method according to Claim 41, further comprising the step of creating a table of limited capacity from digital data representing adjacent ~~wider~~ bands of the page.

Claim 43 (currently amended): Method according to Claim 42, wherein overlapping ~~broadened~~ wider bands are selected, and, using digital data corresponding to the overlapping ~~broadened~~ wider bands, at least one enlarged table (103) is created, which allows an image reprocessing entailing a modification of the switched-on pixels, wherein

the enlarged table is modified by applying a known correction algorithm (111), and wherein counting of switched-on pixels corresponding to an excess part of the enlarged table is excluded.

Claim 44 (previously presented): Method according to Claim 43, wherein the method is used for colour printing, wherein as many enlarged tables (103) are created as there are printing products, with each enlarged table describing a monochromatic component, wherein a correction algorithm (111) is applied to all the enlarged tables before separately effecting counting of the switched-on pixels in each enlarged table for predicting different quantities of required printing products, of all colours concerned.

Claim 45 (previously presented): Method according to Claim 40, further comprising a calculation step of multiplying (10) the number of switched-on pixels by a value representing an elementary quantity of the printing product.

Claim 46 (previously presented): Method according to Claim 45, wherein the method is for an inkjet printing system, and wherein the value represents a value of a droplet of the printing product that is ejected.

Claim 47 (previously presented): Method according to Claim 46, wherein the value is preselected according to predetermined parameters, including a type of printer (7) and/or a type of cartridge (8) and/or a type of printing product (9).

Claim 48 (previously presented): Method according to Claim 47, wherein a set of values is stored and one of the values is selected according to a combination of the predetermined parameters.

Claim 49 (previously presented): Method according to Claim 29, wherein measurement of a quantity of a printing product available in a reservoir includes arranging a capacitive branch including the reservoir (312a, 312d), applying an alternating signal (317) to the capacitive branch, and analysing a resulting signal (315) in order to derive from the resulting signal the quantity of the printing product available.

Claim 50 (currently amended): Device for managing printing product resources available in a colour printer that includes several reservoirs of different printing products, comprising:

divider means for dividing (2) a document stored as digital data, into groups of digital data representing pages;

prediction means for predicting (10) a quantity of each printing product necessary for printing each page of the document, including:

means for dividing each page of the document into wider bands of the digital data, wherein a wider band is a band increased by an overlap margin belonging to an adjacent band,

means for creating, from the digital data, a table of limited capacity describing at least part of a monochromatic component of one of the bands a wider band,

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with the monochromatic component corresponding to the printing product and each cell in the table representing at least a pixel,

means for counting (6) a number of switched-on pixels in the table, with a switched-on pixel corresponding to a pixel for which a portion of the printing product must be ejected, and

means for deriving from a number of switched-on pixels corresponding to each <u>wider</u> band a necessary quantity (10) of the printing product before enabling or demanding printing;

measurement means for measuring (317, 324, 315), before printing, a quantity of a printing product available in a reservoir, for each reservoir;

determination means for determining a selection of pages (415) that would ensure exhaustion, at least approximately simultaneously, of at least one group of the reservoirs; and

message means for sending a message and/or triggering implementation of a processing, entailing the selection of pages.

Claim 51 (previously presented): Device according to Claim 50,

wherein the prediction means predicts a quantity of each printing product necessary for printing pages in their natural order, and

further comprising:

update means for updating, after each series of predictions concerning a page, a quantity of each printing product that would be available in each

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reservoir;

checking means for checking (406), after each updating, whether a group of at least some of the reservoirs are almost empty; and

notice means for sending a message (408) indicating a need to change or fill the group of the reservoirs.

Claim 52 (previously presented): Device according to Claim 51, further comprising storage means for storing predicted quantities of products consumed for each page, when processing pages in their natural order.

Claim 53 (previously presented): Device according to Claim 52,

wherein the prediction means predicts a quantity of each printing product necessary for printing remaining pages, and

wherein the storage means stores the predicted quantity of each printing product necessary for printing the remaining pages, when a selection of pages is decided on.

Claim 54 (previously presented): Device according to Claim 52,

wherein the prediction means predicts a quantity of each printing product necessary for printing remaining pages, and

wherein the storage means stores the predicted quantity of each printing product necessary for printing the remaining pages, when a selection of pages is decided

on, and

wherein the determination means determine whether a sub-group of pages (620) exists whose printing would result in a group of at least some of the reservoirs being almost empty when printing of the sub-group ends.

Claim 55 (previously presented): Device according to Claim 50,

wherein the prediction means predicts a quantity of a printing product necessary for printing a page, and

further comprising:

describer means for describing the page by pixels (4); and

counter means for counting (6) a number of switched-on pixels corresponding to the printing product.

Claim 56 (previously presented): Device according to claim 55, further comprising:

creation means for creating a table (T_a, T_b, T_c, T_d) describing at least part of a monochromatic component, with the monochromatic component corresponding to the printing product and each cell of the table representing a pixel, wherein the counter means counts a number of switched-on pixels in the table; and

deriver means for deriving from the number of switched-on pixels in the table a necessary quantity of the printing product.

Claim 57 (previously presented): Device according to Claim 56,

wherein the table of limited capacity is created with a limited capacity less

than a capacity necessary for describing the monochromatic component, and

further comprising:

entry means for successively entering in the table of limited capacity

groups of pixels of the monochromatic component, and

wherein the counter means, on each occasion of counting, counts a number

of switched-on pixels until all the monochromatic component has been entered in the table

of limited capacity and the switched-on pixels have been counted.

Claim 58 (currently amended): Device according to Claim 57, wherein the

creation means creates the table of limited capacity from digital data representing adjacent

wider bands of the page.

Claim 59 (currently amended): Device according to Claim 58, further

comprising:

selection means for selecting overlapping ~~broadened~~ wider bands, wherein

the creation means creates at least one enlarged table (103) from digital data corresponding

to the overlapping ~~broadened~~ wider bands, which allows an image reprocessing entailing a

modification of the switched-on pixels;

modification means for modifying the enlarged table by applying a known

correction algorithm (111); and

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exclusion means for excluding counting of switched-on pixels

corresponding to an excess part of the enlarged table.

Claim 60 (previously presented): Device according to Claim 59,

wherein the device is used for colour printing,

wherein the creation means creates as many enlarged tables (103) as there

are printing products, with each enlarged table describing a monochromatic component,

and

further comprising

correction means for applying a correction algorithm (111) to all the

enlarged tables; and

means for separately effecting counting of the switched-on pixels in

each enlarged table for predicting different quantities of required printing products, of all

colours concerned.

Claim 61 (previously presented): Device according to Claim 56, further

comprising calculation means for multiplying (10) the number of switched-on pixels by a

value representing an elementary quantity of the printing product.

Claim 62 (previously presented): Device according to Claim 61, wherein

the device is used with an inkjet printing system, and wherein the value represents a

volume of a droplet of the printing product that is ejected.

Claim 63 (previously presented): Device according to Claim 62, further comprising preselection means for preselecting the value as a function of predetermined parameters, including a type of printer (7) and/or a type of cartridge (8) and/or a type of printing product (9).

Claim 64 (previously presented): Device according to Claim 63, further comprising:

storage means for storing a set of values; and

selection means for selecting one of the values according to a combination of the predetermined parameters.

Claim 65 (previously presented): Device according to Claim 50, wherein the measurement means comprises:

a capacitive branch including the reservoir (312a, 312d);

means for applying an alternating signal (317) to the capacitive branch; and

means for analysing a resulting signal (315) in order to derive from the resulting signal the quantity of printing product available.

Claims 66-68 (canceled)

Claim 69 (currently amended): Method according to Claim 1, ~~wherein a band consists of a broadened band representing a band of a page of the document,~~

~~increased by an overlap margin belonging to a band following the broadened band, and~~ wherein the <u>step of</u> counting [[of]] the number of switched-on pixels in the table describing at least part of [[a]] <u>the</u> monochromatic component of the ~~broadened~~ <u>wider</u> band excludes switched-on pixels corresponding to an excess part of the table.

Claim 70 (previously presented): Method according to Claim 1 or Claim 69, wherein the table is modified by applying a known correction algorithm entailing modification of the switched-on pixels.

Claim 71 (previously presented): Method according to Claim 70, wherein the method is used for colour printing, wherein as many tables are created as there are colours, with each table describing a monochromatic component of the document, and wherein a correction algorithm is applied to all the tables before separately effecting counting (6) of the switched-on pixels in each table for predicting different quantities of printing products required, of all the colours concerned.

Claim 72 (currently amended): Device according to Claim 15, ~~further~~ ~~comprising divider means for dividing each page of the document into broadened bands,~~ ~~with a broadened band representing a band of a page of the document, increased by an~~ ~~overlap margin belonging to a band following the broadened band,~~ wherein the counter means excludes switched-on pixels corresponding to an excess part of the table describing at least part of a monochromatic component of the ~~broadened~~ <u>wider</u> band.

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Claim 73 (previously presented): Device according to Claim 15 or Claim 72, further comprising modification means for modifying the table by applying a known correction algorithm entailing modification of the switched-on pixels.

Claim 74 (previously presented): Device according to Claim 73,

wherein the device is used for colour printing,

wherein the creation means creates as many tables as there are colours, with each table describing a monochromatic component of the document, and

further comprising:

correction means for applying a correction algorithm to all the tables; and

means for separately effecting counting (6) of the switched-on pixels of each table for predicting different quantities of required printing products, of all the colours concerned.

Claim 75 (currently amended): Information storage medium storing a program for causing a programmable processing apparatus to perform a method of predicting a quantity of a printing product necessary for printing a document, wherein the method comprises the steps of:

storing a document in its entirety as digital data;

dividing each page of the document into wider bands of corresponding digital data, wherein a wider band is a band increased by an overlap margin belonging to an

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adjacent band;

creating, from the digital data, a table of limited capacity describing ~~at least part of~~ a monochromatic component of ~~one of the bands~~ a wider band, with the monochromatic component corresponding to the printing product and each cell of the table representing at least a pixel;

counting a number of switched-on pixels in the table, with a switched-on pixel corresponding to a pixel for which a portion of the printing product must be ejected; and

deriving from a number of switched-on pixels corresponding to each <u>wider</u> band, a necessary quantity of the printing product before enabling or demanding printing.

Claim 76 (previously presented): Information storage medium according to Claim 75, wherein the medium is one of a magnetic tape, a magnetic diskette, a fixed-memory compact disc, and a rewritable compact disc.

Claim 77 (previously presented): Method according to Claim 29, wherein the measuring step for measuring a quantity of printing product available in a reservoir includes arranging a capacitive branch including the reservoir (312a, 312d), applying an alternating signal (317) to the capacitive branch, and analyzing a resulting signal (315) in order to derive therefrom the quantity of printing product available.